

Suspended

Trend Study 3-16-96

Study site name: Maple Canyon.

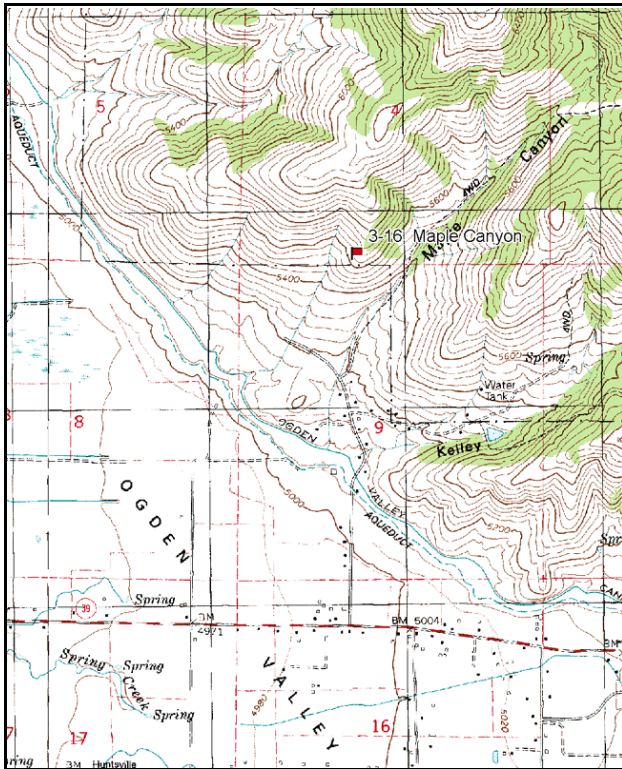
Vegetation type: Big Sagebrush-Grass.

Compass bearing: frequency baseline 165 degrees magnetic.

Frequency belt placement: Line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

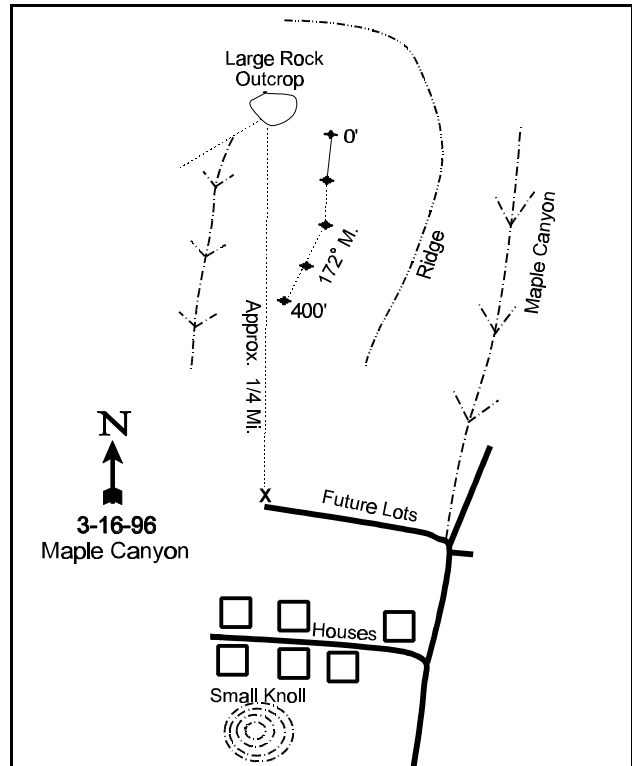
LOCATION DESCRIPTION

From the intersection where Highway U-39 turns 90 degrees and heads east towards Monte Cristo, continue 1.5 miles to mile marker 21 (9000 East). Turn left and proceed 1.1 miles to the mouth of the bowl-shaped draw adjacent to Maple Canyon. Walk up the draw to a 20 foot wide large flat rock located on the east side of the draw approximately half way to the top. From the rock go 35 feet at 135 degrees magnetic to the starting point of the baseline. The stake has a red browse tag #7033 attached. Stakes are three feet high rebar stakes. Rock outcrop is on the east side of the drainage about 1 ft. from the bottom of the draw. Most of this area is now being developed. In the future, access to the area may be restricted by homes being built.



Map Name: Brown's Hole

Township 6N, Range 2E, Section 4



Diagrammatic Sketch

UTM 4570667 N 438664 E

DISCUSSION

Trend Study No. 3-16

*****SUSPENDED** - This site was suspended in 2001 and will be reevaluated in 2006. Development in the area is restricting access and decreasing the importance of this site as big game winter range. Also, the site burned prior to the 1996 reading and most of the key browse was lost. After consulting with the local biologist this site was not read in 2001. Text and data tables are included from the 1996 report.

The Maple Canyon study is on a privately-owned southwest facing slope within a small draw above Ogden Valley. It has a 40% slope and an elevation of 5,500 feet. The vegetation was originally dominated by mountain big sagebrush and grass. However, due to a fire that occurred sometime after 1990, it is now mostly cheatgrass, annual and perennial weeds. The ridge top has some big tooth maple. Land at the base of the hills is being developed for houses, except development on the site itself is doubtful due to the slope. The pellet group transect in nearby Maple Canyon showed a varying trend, with generally moderate deer use in the past (Jense et al. 1985). Use from grazing cattle also appeared moderate during the 1985 reading. Currently ('96), only a few deer pellet groups were found on the site.

The soil is fairly shallow and extremely rocky with an effective rooting depth (see methods) estimated at just over 10 inches. Rock are common on the surface (31% cover) and throughout the profile. Soil texture is a sandy clay loam with a neutral soil reaction (6.8 pH). A calcium carbonate layer is present at a depth of about 12 inches. Soil temperature is moderately high at 70.4°F at a depth of 10 inches. There are currently no erosion problems due to abundant protective ground cover.

The dominant species on this site used to be mountain big sagebrush and antelope bitterbrush. The sagebrush plants were vigorous and lightly browsed. Thirty-two percent of the population were seedling and young plants in 1985, but the majority were mature plants under two feet tall. The most preferred browse plant was bitterbrush. Most bitterbrush were heavily hedged with little reproduction noted. Many plants were decadent because of past heavy use (67%) during the early 1980's. A fire burned through the area some time after the 1990 reading. Only a few maple, chokecherry and Wood's rose remain. These species occur in very small numbers. Some seedling, young and one mature sagebrush were found on the site. The nearest existing mature sagebrush stand is about 300 feet down slope.

Escape and thermal cover are nonexistent on the study site, but the rather dense stand of bigtooth maple (*Acer grandidentatum*) over the ridge can provide good cover during the warm season. The available parts of these large trees have been heavily utilized in the past. Point-center quarter data from 1996 estimate 8 trees/acre with an average diameter of 4.2 inches.

The herbaceous understory was previously dominated by perennial forbs. Large arrowleaf balsamroot and Louisiana sagebrush plants were abundant. After the fire, the site is now dominated by annuals and weeds, with perennial grasses being nearly absent. Cheatgrass and Japanese brome account for 98% of the grass cover, while weedy forbs, whitetop, mustard, dyers woad and flannel mullein, make up almost 40% of the forb cover. Some of the more desirable forbs found in 1985 and 1990 still occur but with reduced frequency.

1985 APPARENT TREND ASSESSMENT

The soil trend appears stable because of good litter and vegetative cover. The lack of reproduction and heavy hedging on the bitterbrush could be a downward trend indicator. However, the sagebrush along with the various forbs will continue to provide adequate forage. Cattle may be responsible for the damage to the bitterbrush. They should be removed from the area when they start feeding heavily on it.

1990 TREND ASSESSMENT

There is good vigor and reproduction of big sagebrush on this privately owned winter range. Sagebrush density slightly increased. Sagebrush receives continued moderate use. The bitterbrush is heavily hedged. These large plants appear increasingly decadent with no signs of reproduction at this time. Grasses are still limited, but several species of valuable forbs remain common. Dyers woad has invaded the area. Rocks comprise 25% of the ground surface, yet vegetative and litter cover is generally adequate to hold the soil.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - slightly downward (2)

1996 TREND ASSESSMENT

The soil trend is up due to a decline in percent bare ground from 12% to 3%. Although litter cover has declined, protective ground cover remains adequate to prevent erosion. Unfortunately, most of the herbaceous ground cover comes from annual grasses which provided abundant fine fuels for another destructive fire. The browse trend is down and the preferred browse, mountain big sagebrush, has been nearly eliminated from the immediate site. Currently, only small numbers of Wood's rose, maple, and chokecherry remain on the site. Some seedling and young sagebrush were inventoried, but it remains a question if these small plants can effectively compete with the overly abundant herbaceous understory, dominated by annuals and weeds. Trend for the herbaceous understory is also down. Sum of nested frequency for perennial grasses has declined and the remaining species produce less than 1% cover. Sum of nested frequency for perennial forbs has increased primarily due to a very large increase in the sum of nested frequency for prickly lettuce and hoary aster. The previously dominant perennial forbs, Louisiana sagebrush and arrowleaf balsamroot, are still abundant yet with significantly reduced frequency values. Sites like this one and the site at Perry Basin should have been rehabilitated immediately after burning to help avoid the invasion of cheatgrass, noxious weeds and weedy forbs.

TREND ASSESSMENT

soil - up (5)

browse - down and nearly eliminated by fire (1)

herbaceous understory - down and dominated by annual grasses and weedy forbs (1)

HERBACEOUS TRENDS --
Herd unit 03 , Study no: 16

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'85	'90	'96	'85	'90	'96	'96
G	Agropyron smithii	2	-	-	1	-	-	-
G	Agropyron spicatum	_{ab} 23	_b 33	_a 16	10	15	8	.29
G	Bromus japonicus (a)	-	-	287	-	-	92	6.04
G	Bromus tectorum (a)	-	-	352	-	-	99	20.11
G	Poa bulbosa	-	-	2	-	-	1	.00
G	Poa fendleriana	_c 84	_b 62	_a 1	33	27	1	.00
G	Poa secunda	-	-	10	-	-	3	.30
Total for Annual Grasses		0	0	639	0	0	191	26.15
Total for Perennial Grasses		109	95	29	44	42	13	0.60
Total for Grasses		109	95	668	44	42	204	26.76
F	Achillea millefolium	5	5	3	3	3	3	.04
F	Agoseris glauca	-	8	-	-	4	-	-
F	Allium spp.	_b 15	_a -	_{ab} 6	8	-	4	.02
F	Ambrosia psilostachya	-	-	7	-	-	3	.45
F	Artemisia ludoviciana	_b 89	_{ab} 66	_a 47	32	26	21	2.04
F	Astragalus beckwithii	-	-	2	-	-	1	.00
F	Balsamorhiza sagittata	_b 84	_b 70	_a 28	36	32	13	7.83
F	Cardaria draba	_a -	_a -	_b 54	-	-	20	3.86
F	Calochortus nuttallii	-	-	6	-	-	2	.01
F	Cirsium spp.	-	3	-	-	1	-	-
F	Collomia linearis (a)	-	-	35	-	-	17	.11
F	Collinsia parviflora (a)	-	-	10	-	-	4	.02
F	Crepis acuminata	-	-	2	-	-	1	.15
F	Cryptantha spp.	_a -	_a -	_b 79	-	-	32	.26
F	Descurainia pinnata (a)	-	-	100	-	-	38	1.33
F	Draba spp. (a)	-	-	77	-	-	27	.31
F	Erodium cicutarium (a)	-	-	40	-	-	17	.38
F	Erigeron strigosus	-	-	-	-	-	-	.04
F	Galium aparine (a)	-	-	2	-	-	1	.00
F	Gayophytum ramosissimum (a)	-	-	6	-	-	2	.01
F	Holosteum umbellatum (a)	-	-	73	-	-	27	.26
F	Isatis tinctoria	_a -	_b 11	_b 17	-	6	8	1.31
F	Lactuca serriola	_a -	_a 2	_b 176	-	1	68	1.59
F	Lepidium spp. (a)	-	-	7	-	-	3	.01

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'85	'90	'96	'85	'90	'96	'96
F	Lithospermum spp.	-	-	4	-	-	1	.03
F	Lupinus argenteus	6	1	3	2	1	1	.15
F	Machaeranthera spp	-	-	105	-	-	45	.96
F	Microsteris gracilis (a)	-	-	3	-	-	1	.00
F	Phlox longifolia	_b 14	_a 3	_{ab} 7	6	1	3	.04
F	Polygonum douglasii (a)	-	-	4	-	-	1	.00
F	Rumex spp.	3	-	-	1	-	-	-
F	Sisymbrium altissimum (a)	_b 44	_a 2	_c 72	17	2	32	.60
F	Stanleya viridiflora	4	3	-	2	1	-	-
F	Tragopogon dubius	_a 11	_b 27	_a 9	4	16	3	.02
F	Unknown forb-perennial	_b 17	_a 3	_a -	6	1	-	-
F	Verbascum thapsus	-	-	7	-	-	3	1.18
F	Vicia americana	_a -	_a -	_b 13	-	-	6	.13
Total for Annual Forbs		44	2	429	17	2	170	3.05
Total for Perennial Forbs		248	202	575	100	93	238	20.14
Total for Forbs		292	204	1004	117	95	408	23.20

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 03 , Study no: 16

T y p e	Species	Strip Frequency	Average Cover %
		'96	'96
B	Acer grandidentatum	1	.38
B	Artemisia tridentata vaseyana	9	.09
B	Gutierrezia sarothrae	1	-
B	Prunus virginiana	3	.93
B	Purshia tridentata	0	-
B	Rosa woodsii	1	.15
Total for Browse		15	1.55

BASIC COVER --

Herd unit 03 , Study no: 16

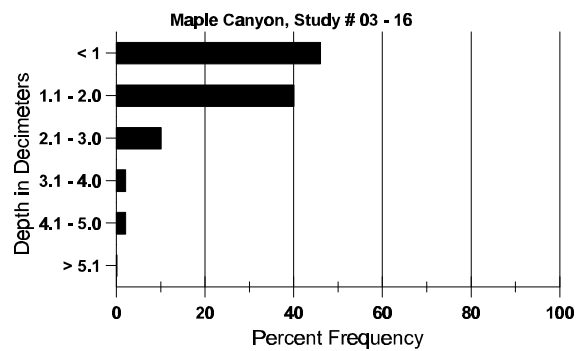
Cover Type	Nested Frequency '96	Average Cover %		
		'85	'90	'96
Vegetation	380	6.50	6.25	50.18
Rock	321	20.75	23.75	30.76
Pavement	115	1.00	1.00	.65
Litter	384	54.25	57.00	42.73
Cryptogams	3	.50	0	.03
Bare Ground	145	17.00	12.00	2.88

SOIL ANALYSIS DATA --

Herd Unit 03, Study no: 16, Maple Canyon

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
10.1	70.4 (10.2)	6.8	52.6	23.4	24.0	2.9	27.6	272.0	.4

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 03 , Study no: 16

Type	Quadrat Frequency '96
Deer	6

BROWSE CHARACTERISTICS --

Herd unit 03 , Study no: 16

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Acer grandidentatum																		
Y	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'85	00%			00%			00%									
		'90	00%			00%			00%									
		'96	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'85	0	Dec:	-			
												'90	0		-			
												'96	20		-			
Artemisia tridentata vaseyana																		
S	85	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	90	2	-	-	-	-	-	-	-	-	2	-	-	-	133		2	
	96	14	-	-	-	-	-	-	-	-	14	-	-	-	280		14	
Y	85	10	-	-	-	-	-	-	-	-	10	-	-	-	666		10	
	90	4	3	-	-	-	-	-	-	-	7	-	-	-	466		7	
	96	9	-	-	2	-	-	-	-	-	11	-	-	-	220		11	
M	85	18	3	-	-	-	-	-	-	-	21	-	-	-	1400	19 19	21	
	90	-	24	-	-	-	-	-	-	-	24	-	-	-	1600	22 26	24	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	- -	1	
D	85	2	1	-	-	-	-	-	-	-	1	2	-	-	200		3	
	90	1	6	-	-	-	-	-	-	-	6	-	1	-	466		7	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
X	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	540		27	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'85	12%			00%			00%			+11%						
		'90	87%			00%			03%			-91%						
		'96	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'85	2266	Dec:	9%			
												'90	2532		18%			
												'96	240		0%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
M	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	9	16	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	0	Dec:	-			
												'90	0		-			
												'96	20		-			
Prunus virginiana																		
S	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	18	-	-	-	-	-	-	-	-	18	-	-	-	360		18	
Y	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
D	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	1	-	-	-	-	-	-	-	-	-	-	1	20		1	
X	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		00%			00%			00%										
'90		00%			00%			00%										
'96		25%			00%			25%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	0	Dec:	0%			
												'90	0		0%			
												'96	80		25%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Purshia tridentata																		
M	85	-	2	2	-	-	-	-	-	-	4	-	-	-	266	28	48	4
	90	-	1	1	-	-	-	-	-	-	2	-	-	-	133	35	46	2
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
D	85	-	-	2	-	-	-	-	-	-	1	-	1	-	133			2
	90	-	1	3	-	-	-	-	-	-	4	-	-	-	266			4
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
X	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	200			10
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		33%			67%			17%			+ 0%							
'90		33%			67%			00%										
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	399	Dec:	33%			
												'90	399		67%			
												'96	0		0%			
Rosa woodsii																		
M	85	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	21	47	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'85		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'85	0	Dec:	-			
												'90	0		-			
												'96	20		-			